Mousam Lake Quadrangle, Maine

Surficial geologic mapping by
Andres Meglioli
Woodrow B. Thompson

Digital cartography by:
Michael E. Foley

Robert G. Marvinney
State Geologist

Cartographic design and editing by:
Robert D. Tucker

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Maine Geological Survey
Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 **E-mail:** mgs@maine.gov
Home page: http://www.maine.gov/doc/nrimc/nrimc.htm

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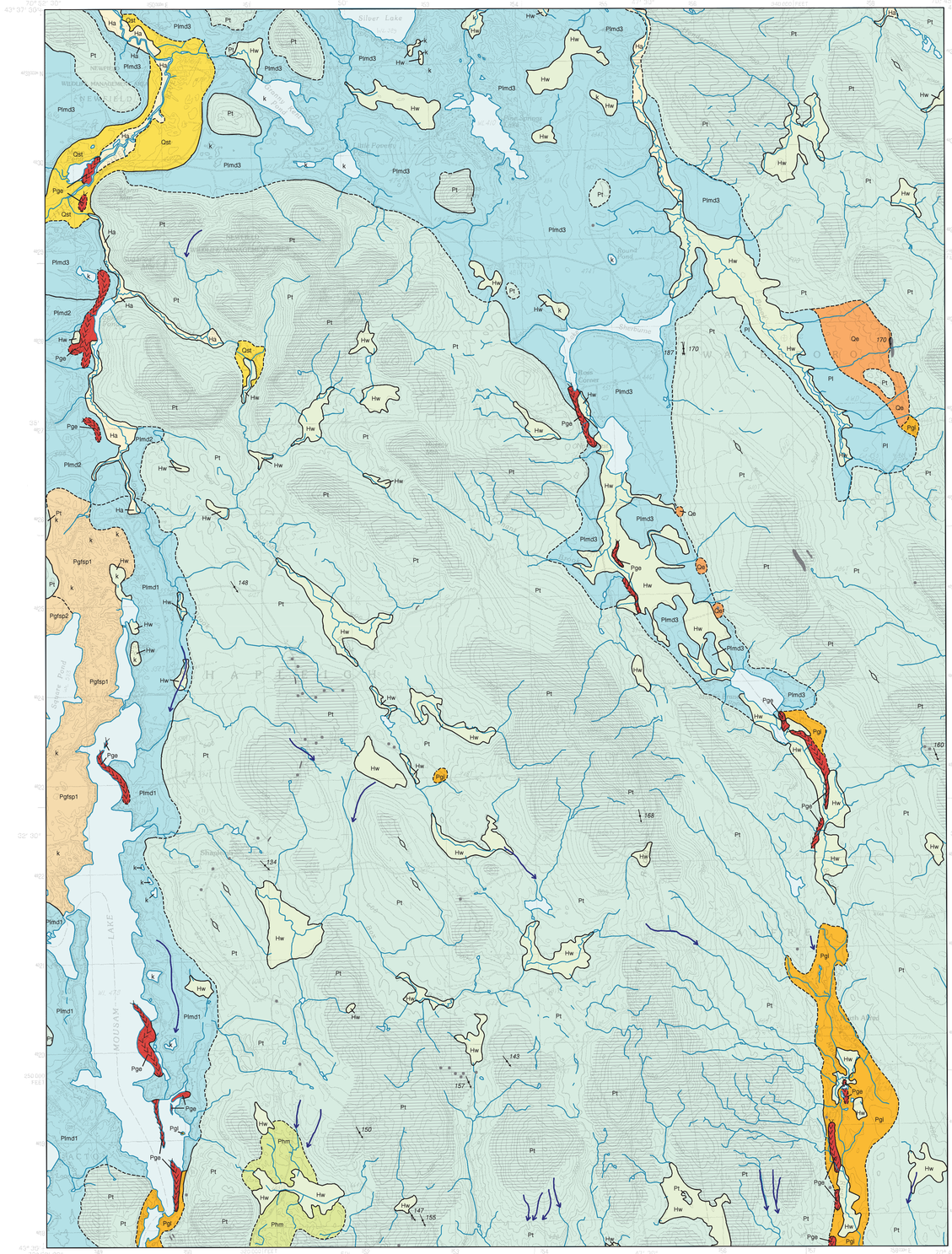
For additional information,
see Open-File Report 97-74.

Surficial Geology



SOURCES OF INFORMATION

Surficial geologic mapping by Andres Meglioli completed during the 1991 field season; funding for this work provided by the U.S. Geological Survey COGEOMAP program. Woodrow B. Thompson conducted additional surficial geologic field work during the 1997 field season, funded by the Maine Geological Survey.

Quadrangle Location

SCALE 1 : 24,000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

TRUE NORTH

Topographic base from U.S. Geological Survey Mousam Lake quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

Note: The first letter of each map unit indicates the general age of the unit:
H = Holocene (postglacial deposit; formed during the last 10,000 years).
Q = Quaternary (deposit of uncertain age, but usually late-glacial and/or postglacial).
P = Pleistocene (deposit formed during glacial to late-glacial time, prior to 10,000 yr B. P. [years before present]).

Ha — **Stream alluvium** - Sand, silt, gravel, and organic material. Deposited on flood plains of modern streams.

Hw — **Wetland deposits** - Peat, muck, and/or fine-grained sediments deposited in poorly drained (wetland) areas.

Qe — **Eolian deposits** - Sand dunes and blanket deposits resulting from wind erosion of older glacial sand plains; usually found on east (downwind) sides of valleys.

Qst — **Stream-terrace deposits** - Sand and gravel deposited on former flood plain surfaces as postglacial streams cut down to their present levels.

Pl — **Glacial lake deposits** - Sand that probably was deposited in a glacial lake in the upper Buff Brook valley. May be part of glacial Lake Mousam deposits.

Plmd1-3 — **Glacial Lake Mousam deposits** - Sand and gravel deposited as deltas into successive stages of glacial Lake Mousam.

Pgfsp1-2 — **Square Pond fans** - Sand and gravel deposited as glacial outwash fans from ice-margin positions in the Square Pond area (Boothroyd, 1997). This unit probably is at least partly deltaic (built into glacial Lake Mousam), and locally has pronounced ice-contact topography including many kettles.

Pgl — **Ice-contact deposits** - Sand and gravel deposited by meltwater streams issuing from glacial ice. May show hummocky topography and internal collapse structures.

Pge — **Esker** - Ridge of sand and gravel deposited by meltwater flowing in a tunnel within or beneath glacial ice. Chevrons indicate inferred direction of stream flow.

Phm — **Hummocky moraine** - Glacial till with hummocky topography. May contain abundant boulders and lenses of sand and gravel.

Pt — **Till** - Loose to compact, poorly sorted, mostly nonstratified mixture of sand, silt, and gravel-size rock debris deposited directly from glacial ice. Locally contains large boulders and/or lenses of water-laid sediment.

Bedrock - Gray dots indicate small individual outcrops. Ruled pattern indicates areas where outcrops are common and/or surficial sediments are generally less than 10 ft thick.

Contact - Boundary between map units. Dashed where location is approximate.

Glacially streamlined hill - Symbol shows trend of long axis of hill, which parallels former ice-flow direction.

135 — **Glacial striation locality** - Arrows show ice-flow directions (with azimuths in degrees) inferred from striations (scratches on bedrock caused by glacial abrasion). Dot marks point of observation. Flagged trend is older.

Meltwater channel - Channel eroded by water draining from glacier margin or the outlet of a glacial lake. Arrow shows inferred direction of former stream flow.

k — **Kettle** - Symbol shows location of a depression left by melting of a remnant mass of glacial ice. Some kettles are now occupied by lakes, ponds, or wetlands.

REFERENCE

Boothroyd, J. C., 1997, Surficial geology of the Great East Lake 7.5' quadrangle, York County, Maine: Maine Geological Survey, Open-File Map 97-46.

USES OF SURFICIAL GEOLOGY MAPS

A surficial geology map shows all the loose materials such as till (commonly called hardpan), sand and gravel, or clay, which overlie solid ledge (bedrock). Bedrock outcrops and areas of abundant bedrock outcrops are shown on the map, but varieties of the bedrock are not distinguished (refer to bedrock geology map). Most of the surficial materials are deposits formed by glacial and deglacial processes during the last stage of continental glaciation, which began about 25,000 years ago. The remainder of the surficial deposits are the products of postglacial geologic processes, such as river floodplains, or are attributed to human activity, such as fill or other land-modifying features.

The map shows the areal distribution of the different types of glacial features, deposits, and landforms as described in the map explanation. Features such as striations and moraines can be used to reconstruct the movement and position of the glacier and its margin, especially as the ice sheet melted. Other ancient features include shorelines and deposits of glacial lakes or the glacial sea, now long gone from the state. This glacial geologic history of the quadrangle is useful to the larger understanding of past earth climate, and how our region of the world underwent recent geologically significant climatic and environmental changes. We may then be able to use this knowledge in anticipation of future similar changes for long-term planning efforts, such as coastal development or waste disposal.

Surficial geology maps are often best used in conjunction with related maps such as surficial materials maps or significant sand and gravel aquifer maps for anyone wanting to know what lies beneath the land surface. For example, these maps may aid in the search for water supplies, or economically important deposits such as sand and gravel for aggregate or clay for bricks or pottery. Environmental issues such as the location of a suitable landfill site or the possible spread of contaminants are directly related to surficial geology. Construction projects such as locating new roads, excavating foundations, or siting new homes may be better planned with a good knowledge of the surficial geology of the site. Refer to the list of related publications below.

OTHER SOURCES OF INFORMATION

1. Meglioli, A., and Thompson, W. B., 1997, Surficial geology of the Mousam Lake 7.5-minute quadrangle, York County, Maine: Maine Geological Survey, Open-File Report 97-74, 6 p.
2. Meglioli, A., and Thompson, W. B., 1998, Surficial materials of the Mousam Lake quadrangle, Maine: Maine Geological Survey, Open-File Map 98-172.
3. Neil, C. D., 1998, Significant sand and gravel aquifers of the Mousam Lake quadrangle, Maine: Maine Geological Survey, Open-File Map 98-138.
4. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
5. Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.
6. Thompson, W. B., Crossen, K. J., Borns, H. W., Jr., and Andersen, B. G., 1989, Glaciomarine deltas of Maine and their relation to late Pleistocene-Holocene crustal movements, *in* Anderson, W. A., and Borns, H. W., Jr. (eds.), Neotectonics of Maine: Maine Geological Survey, Bulletin 40, p. 43-67.